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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/730,656 | 12/06/2000 | Marcel Rene Bohmer | PHN 17,812 | 8075 |

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EXAMINER

COSTANZO, PATRICIA M.

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 12/21/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/730,656

Applicant(s)

BOHMER ET AL.

Examiner

Patricia M. Costanzo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 - 8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
page 5 – the two sentences found on lines 12-14 do not make any sense.
page 7, line 7 – is “en” meant to be “and”?

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1 - 7 are rejected under 35 U.S.C. 112, second paragraph as being indefinite.

Claim 1 recites the limitation "powdery first filler" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claims 2 – 7 are rejected as depending on an indefinite claim.

Suggested claim language -- replace “a powdery filler” on line 3 by “at least two powdery fillers”.

Appropriate correction is required.

Claim R jections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5, and 8 (as well an indefinite claims can be understood) are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 5,916,944 (Camiletti *et al.*).

Camiletti *et al.* teach a semiconductor device as claimed. See the Camiletti *et al.* specification.

Referring to Claim 1, Camiletti *et al.* teach a semiconductor device (see, for example, Col. 2, lines 5 -13) with a substrate (Col.1, line 42) which inherently has a first side on which there is provided a first semiconductor element (Col. 4, lines 53-55) and at least one security coating (Col. 1, line 42) which comprises a powdery filler (see, for example, Col. 4, line 8) incorporated in a matrix (see, for example, Col. 1, lines 44 and Col. 4, lines 53-54), characterized in that the difference between the refractive index of the powdery first filler, TiO_2 (as is disclosed on line 12, Col. 4, for example) and that of the silica precursor resin matrix (Col. 4, line 53, for example) is at least 0.3 (as is admitted by the Applicant in last paragraph of page 2 and the first paragraph of page 3 of the present Application), and the coating comprises a second filler (Col. 4, line 54) which is a substantial absorber of radiation of wavelengths at least in the range of from

800 to 1400 nm, such as a compound of titanium, Ti N, (for a teaching of titanium see, for example, Col. 3, lines 31-32, and for teaching of nitride see Col. 4, line 10) and is free from heavy metals.

TiN is a radio-adsorbent, that is, the compound adsorbs radiation in the recited region as is admitted by Applicant on page 2, lines 14 – 16 of the present Application. In addition, Applicant admits on page 2, lines 24-26 of the present Application that titanium nitride is free of heavy metals, and as no other materials containing heavy metals are added to the matrix, it is inherent that no heavy metals are present.

Referring to Claim 2, Camiletti *et al.* describe a semiconductor device as recited in Claim 1, and further disclose a second filler that comprises TiN (see Col. 4, line 12, and Col.3, lines 32-33, for example).

Referring to Claim 3, Camiletti *et al.* disclose a semiconductor device as recited in Claim 1, having a first filler comprising TiO₂ (see Col. 4, line 12, for example).

Referring to Claim 5, Camiletti *et al.* describe semiconductor device as recited in Claims 1 and 4, having a security coating of thickness less than three microns (see, for example, Col. 5, line 60).

Referring to Claim 8, Camiletti *et al.* disclose a semiconductor device as recited in Claim 1 and, further, disclose a smartcard (see Col. 2, line 21, for example).

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6. Claims 1 - 3 (as well as indefinite claims can be understood) are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 5,258, 334 (Lantz, II).

Lantz, II discloses a semiconductor device as claimed. See the Lantz, II specification.

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Referring to Claim 1, Lantz, II teaches (see, for example, Col. 1, lines 10–11 and 61-62) a semiconductor device (it is inherent that a semiconductor device have a substrate and a first side of which there are provided at least a first semiconductor element) and at least one security coating (see, for example, Col. 1, lines 42 and 53-59) which comprises a powdery filler (see, for example, Col. 3, line 20) incorporated in a matrix (see, for example, Col. 3, lines 14-15), characterized in that the difference between the refractive index of the powdery first filler (TiO_2 as stated on line 59, Col. 2, for example) and that of the matrix (see, for example, line 60, Col. 1) is at least 0.3 (as is admitted by the Applicant in last paragraph of page 2, the first paragraph of page 3, and the last paragraph of page 4 of the present Application), and the coating comprises a second filler (Col. 3, lines 14-15) which is a substantial absorber of wavelengths at least in the range of from 900 to 1400 nm (the physical properties of TiN make it inherent for this compound to adsorb radiation in the recited range as is admitted by Applicant as is discussed above) and is free from heavy metals (if no heavy metals or materials containing heavy metals are added to the coating then no heavy metal can be present in the coating, as is also discussed above).

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Referring to Claim 2, Lantz, II describes a semiconductor device as recited in Claim 1 and further describes the use of TiN (see Col. 2, lines 47-48, for example) as filler.

Referring to Claim 3, Lantz, II describes a semiconductor device as recited in Claim 1 and further, the use of TiO₂ (see Col. 2, line 59, for example) as filler.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

8. Claims 1, 3, 4, and 8 (as well as indefinite claims can be understood) are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent No. 6,198,155 (Verhaegh *et al.*).

Verhaegh *et al.* disclose a semiconductor device as claimed. See Figures 1 – 6 and respective portions of the Verhaegh *et al.* specification.

Referring to Claim 1, Verhaegh *et al.* disclose (see, for example, Figure 3) a semiconductor device (12) having a substrate (1) on a first side (2) of which there are provided a first semiconductor element (3) and at least one security coating (14) which comprises a powdery filler (see, for example, Col. 15, line 11) incorporated in a matrix (see, for example, Col. 4, line 23), characterized in that the difference between the refractive index of the powdery first filler (TiO_2 , as is stated on line 49, Col. 4, for example) and that of the matrix (mono-aluminum-phosphate, as is stated on line 23, Col. 4, for example) is at least 0.3 (as is admitted by the Applicant in last paragraph of page 2 and the first paragraph of page 3 of the present Application), and the coating comprises a second filler (Col. 4, line 44-46) which is a substantial absorber of radiation of wavelengths at least in the range of from 800 to 1400 nm (see, for example, Col. 4, lines 44-46) and is free from heavy metals.

In Col. 4, lines 44-46, Verhaegh *et al.* disclose that particles with different properties, such as particles that absorb radiation (one such particle is TiN) and particles that scatter radiation (one such particle is TiO_2) may be added to the matrix to render the protective layer (14) impervious to radiation. Radiation is a term that, at the time of the invention was well known in the art to refer to all radiation of the electromagnetic spectrum, from short wavelength gamma rays to long wavelength radio waves, including, of course, visible, infrared, and ultraviolet radiation.

Applicant admits, on page 2, lines 14-16 of the present Application, that titanium nitride (a second filler) adsorbs radiation in the range of 800 to 2000 nm and that titanium dioxide (a first filler) scatters light.

Applicant admits on page 2, lines 24-26 of the present Application that titanium nitride is free of heavy metals, and as no other materials containing heavy metals are added to the matrix, it is inherent that no heavy metals are present.

Referring to Claim 3, Verhaegh *et al.* describe a semiconductor device as recited in Claim 1, having a first filler comprising TiO₂ (see Col. 4, line 49, for example).

Referring to Claim 4, Verhaegh *et al.* describe a semiconductor device as recited in Claim 1 having a matrix coating of mono-aluminum-phosphate (Col. 4, line 23, for example).

Referring to Claim 8, Verhaegh *et al.* describe a smartcard (Col. 4, line 21, for example) that is provided with a memory and a security coating which comprises a powdery first filler incorporated in a matrix (see, for example lines 14-24 of Col. 4), where the coating comprises a second filler which is an absorber of radiation of a wavelength in the range of from 800 to 1400 nm (the argument given for Claim 1 pertains here), and where the difference between the refractive index of the first filler and that of the matrix is at least 0.3 (regarding the difference in refractive index, the same argument used in Claim 1, also applies here).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior

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art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claim 5, in so far as Claim 5 is in compliance with 35 U.S.C. 112, is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 6,198,155 (Verhaegh *et al.*).

Verhaegh *et al.* describe a semiconductor device as recited in Claims 1 and 4.

Verhaegh *et al.* do not specifically describe having a security coating of thickness less than three microns.

Verhaegh *et al.* describe an overlapping range of thickness of from 2 to 10 microns (see, for example, Col. 4, lines 26 and 53).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the thickness disclosed by Verhaegh to less than 3 microns as recited as overlapping ranges are *prima facie* obvious (see MPEP 2144.05).

11. Claims 6 and 7, in so far as Claims 6 and 7 are in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Camiletti *et al.* as applied to Claim 1 above and further in view of United States Patent No. 5,053,992 (Gilberg *et al.*).

Referring to Claim 6, Camiletti *et al.* disclose all of the limitations as recited in Claim 1.

Camiletti *et al.* do not specifically teach a light-sensitive element and an element containing data, which elements are covered by a security coating and which light-sensitive element, after damaging of the coating, reacts to exposure to visible light by inducing a permanent change of state of the element containing data.

Gilberg *et al.* (see Figures 1 – 5 and respective portions of the Gilberg *et al.* specification) disclose a light-sensitive element (42) and an element containing data (see (10) and Col. 2, line 58, for example), which elements are covered by a security coating (see, for example, (14) and Col.2, lines 59-60) and which light-sensitive element, after damaging of the coating, reacts to exposure to visible light by inducing a permanent change of state of the element containing data (Col.1, lines 29-34 and Col. 3, lines 31-43).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the tamper-proof coating for an electronic device taught by Camiletti *et al.* with the light-sensitive element requiring a security coating and an element containing data that would be permanently changed upon damaging of the coating, as taught by Gilberg *et al.*, to obtain the advantage of "preventing inspection of

secret data that is stored" in the element (Gilberg *et al.*, Col. 1, lines 14-16) and which advantage is similarly taught by Camiletti *et al.* (see Col. 5, lines 63-67).

Referring to Claim 7, Camiletti *et al.* disclose all of the limitations as recited in Claim 1 (please note that the limitations of Claim 7 are in bold for ease of reading).

Camiletti *et al.* do not specifically disclose a light-sensitive element and an **electronically programmable** element containing data, which elements are covered by a security coating and which light-sensitive element, after damaging of the coating, reacts to exposure to visible light by inducing **erasure of the data and by bringing the electrically programmable element into a non-programmable state** of the element containing data.

Gilberg *et al.* disclose a memory element containing data (see, in general see Figures 1 – 5 and respective portions of the Gilberg *et al.* specification; see specifically for example, (10) and Col. 1, line 30). Gilberg *et al.* also disclose that a light sensitive memory element will be damaged when its protective coating is damaged because the light sensitive memory element reacts to exposure to visible light by inducing **erasure** (or elimination) **of the data** (Col. 3, line 40-41, for example), **which brings the electrically programmable element into a non-programmable state** (Col. 3, line 44-47).

Although Gilberg *et al.* do not specifically disclose that the memory element is electronically programmable, this feature is taken to be an inherent function of an electronic memory element, in that was well known by those of ordinary skill in the art at

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the time the invention was made that programming an electronic element by electronic means (using software, for example) is the only way to program an electronic element.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the tamper-proof coating for an electron device taught by Camiletti *et al.* with the light-sensitive element and the data containing, memory element as taught by Gilberg *et al.*, to obtain the advantage of protecting sensitive data by permanently damaging or destroying the data and by preventing reprogramming of the programmable element.

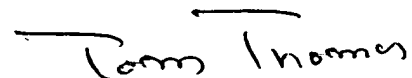
Conclusion

Any inquiry concerning this communication should be directed to Patricia Costanzo at 703 305-5675 on Monday – Friday from 8:00 A.M. – 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful Supervisory Primary Examiner Tom Thomas can be reached at 703 308 -2772.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist at 703 308-095.

pmc
December 6, 2001



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